

WHAT IS CLAIMED IS:

1           1. A programmable thermostat system for controlling space conditioning  
2 equipment comprising:

3           A) at least one environmental condition sensor providing an electrical signal  
4 indicative of the ambient temperature of a conditioned space in which said  
5 environmental condition sensor is situated;

6           B) a transparent touch pad juxtaposed with a generally rectangular dot matrix  
7 liquid crystal display to constitute a generally rectangular touch screen for interactive  
8 interface with a user, said touch screen having a long dimension and a short dimension;

9           C) a processor, said processor including:

10               1) a central processing unit;

11               2) a real time clock;

12               3) a memory coupled to said central processing unit for storing program  
13 and data information; and

14               4) an input/output unit coupled between said processor and said touch  
15 screen for carrying out information transfer therebetween, said  
16 input/output unit further including:

17                   a) a sensor input coupled to each said environmental condition  
18 sensors for receiving said electrical signal therefrom; and

19                   b) a control output coupled to the space conditioning equipment for  
20 issuing control signals thereto; and

21           D) a housing for said central processing unit, said real time clock, said memory  
22 and said input/output unit with said touch screen being disposed on one face thereof;

23           E) a control program stored in said memory for causing said central processing  
24 unit to communicate through said input/output unit to selectively:

25               1) establish on said touch screen:

26                   a) a representation of a first virtual button; and

27                   b) a first legend indicative of said first virtual button, if touched,  
28 invoking a setup function of said thermostat, which setup function is

29                   for reorienting a pictorial presented on said touch screen between  
30                   horizontal and vertical;

31                2) read the touch screen to determine if the representation of said first  
32                   virtual button has been touched; and

33                3) if the first virtual button has been touched, reorienting the pictorial  
34                   presented on said touch screen between horizontal and vertical to  
35                   facilitate respective horizontal and vertical mounting of said  
36                   housing.

1                2. The programmable thermostat system of Claim 1 which substep E)3) is  
2 carried out by remapping column and row drive signals to individual pixels of said dot  
3 matrix liquid crystal display.

1                3. The programmable thermostat system of Claim 1 in which substep E)3) is  
2 invoked only if said the virtual button is touched continuously for a predetermined  
3 period.

1                4. The programmable thermostat system of Claim 2 in which substep E)3) is  
2 invoked only if said the virtual button is touched continuously for a predetermined  
3 period.

1                5. A programmable thermostat system for controlling space conditioning  
2 equipment comprising:

3                A) at least one environmental condition sensor providing an electrical signal  
4 indicative of the ambient temperature of a conditioned space in which said  
5 environmental condition sensor is situated;

6                B) a transparent touch pad juxtaposed with a dot matrix liquid crystal display to  
7 constitute a touch screen for interactive interface with a user;

8                C) a processor, said processor including:

9                   1) a central processing unit;

10                  2) a real time clock;

11                  3) a memory coupled to said central processing unit for storing program  
12                   and data information; and

13 4) an input/output unit coupled between said processor and said touch  
14 screen for carrying out information transfer therebetween, said  
15 input/output unit further including:  
16 a) a sensor input coupled to each said environmental condition  
17 sensors for receiving said electrical signal therefrom; and  
18 b) a control output coupled to the space conditioning equipment for  
19 issuing control signals thereto; and  
20 D) a housing for said central processing unit, said real time clock, said memory  
21 and said input/output unit with said touch screen being disposed on one face thereof;  
22 E) a control program stored in said memory for causing said central processing  
23 unit to communicate through said input/output unit to selectively:  
24 1) establish on said touch screen:  
25 a) a representation of a first virtual button; and  
26 b) a first legend indicative of said first virtual button, if touched,  
27 invoking a setup function of said thermostat, which setup function is  
28 for angularly reorienting a pictorial presented on said touch screen;  
29 2) read the touch screen to determine if the representation of said first  
30 virtual button has been touched; and  
31 3) if the first virtual button has been touched, angularly reorienting the  
32 pictorial presented on said touch screen.

1 6. The programmable thermostat system of Claim 5 which substep E)3) is  
2 carried out by remapping column and row drive signals to individual pixels of said dot  
3 matrix liquid crystal display.

1 7. The programmable thermostat system of Claim 5 in which substep E)3) is  
2 invoked only if said the virtual button is touched continuously for a predetermined  
3 period.

1 8. The programmable thermostat system of Claim 6 in which substep E)3) is  
2 invoked only if said the virtual button is touched continuously for a predetermined  
3 period.